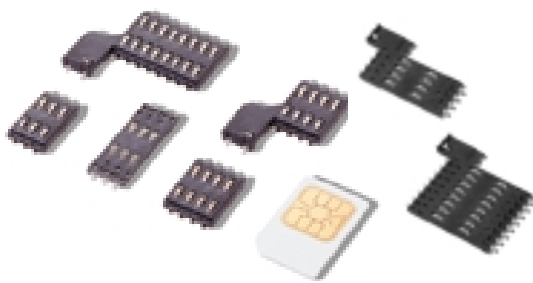


CCM04 MKII



The CCM04 without card guidance is used where space is at a premium and the card guidance can be built around the connector (rather than provided by the connector itself).

The CCM04 low profile without card guidance is dedicated to applications where the overall height of the connector is paramount. A range of low profile CCM04 connectors are available with 1.25 mm thick moldings.

The wide choice of contact configurations and molding heights suit a broad range of applications.

Features

- Available in a variety of molding heights from 1.25 mm to 5 mm.
- The integrated card detection switch (optional) is sealed against dust and grit.
- By using an inlay finish in the contact area, the life of the precious metal is extended by more than 10 times that of standard gold plating.
- The height of the contact above the insulator is 0.75 mm, so allowing a wider tolerance for the card entry slot.
- The contact area is spooned to reduce the risk of accidental (or deliberate) damage, and to optimize the electrical connection with the card.
- The tip of the contact is protected by the molding so that it cannot catch on the card as the card is being inserted.
- The contact design ensures a consistent and reliable contact force over the life of the connector.
- Robustly formed printed circuit tails are well protected by the insulator body: a coplanarity of ± 0.05 mm is guaranteed.
- The moldings are made from high temperature thermoplastic suited for infrared and convection soldering processes.
- With tape and reel packaging as standard, the connectors are designed to be automatically picked & placed.

Construction	
Contacts	Copper alloy
Plating	Contact area : Gold alloy inlay Terminals : Tin lead (2μ min)
Moldings	High temp. thermoplastic UL 94V-0 rated
Mechanical data	
Number of Contacts	6, 8 or 16
Mechanical life	50,000 cycles min
Durability of inlay	5,000 cycles min (see note 1)
Contact force	0.25 N min / 0.5 N max
Card detection switch actuation force	0.8 N max for actuation (end travel switch actuates when card is 0.9 mm from card stop) 1.8 N max for complete depression
Vibration 50m/s ²	Frequency 10 to 500 Hz. Acceleration Duration 6 hours - amplitude 0.35 mm Max electrical discontinuity 1μs
Shock	Peak value 500 m/s ² - Duration 11 ms 3 shocks in each direction of each axis Max electrical discontinuity 1 μs
Electrical data	
Insulation resistance	1,000 MΩ min
Contact resistance max	100 mΩ max
Switching current	10 μA min / 1 A max
Dielectric strength	750 Vrms min
Card detection switch	Normally open (closes on card insertion)
Switch contact resistance	100mΩ max
Dielectric switch contacts	250 Vrms min
Maximum switch power	0.2 VA
Environmental data	
Operating temperature	-40°C to +85°C
Soldering temperature	Temperature/time profile acc. to CECC00802 para. 6.1, Fig. 3 with peak temperature 250°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
Card detection switch	Sealed IP 54 For CCM04 1889 & 1905 Sealed against dust for other versions

Note 1: Inlay (precious metal) rating is based on a very abrasive card being used and is intended to represent worst case.

CCM04 MKII

Ordering code					
		Without Switch		With Switch	
Molding Height	SMT Tails	2 x 3 contacts	2 x 4 contacts	2 x 4 contacts	2 x 8 contacts
1.25 mm	Standard	CCM04-1801	CCM04-1814	CCM04-1889	CCM04-1905
1.25 mm	Straight	CCM04-1800*	CCM04-1813*	CCM04-1888*	
2.00 mm	Standard	CCM04-5004**	CCM04-1415*		
2.75 mm	Straight	CCM04-1200	CCM04-1217*	CCM04-1316	CCM04-1333*
2.75 mm	Standard	CCM04-1201	CCM04-1218	CCM04-1317	CCM04-1334
3.50 mm	Standard	CCM04-1202	CCM04-1219*	CCM04-1318	
4.25 mm	Standard	CCM04-1203*	CCM04-1220	CCM04-1319*	
5.00 mm	Standard		CCM04-1221	CCM04-1320	

*Note: On request

**Note: Replaced by CCM04-5102 (see page 53)

Packaging

Connectors without a switch are packaged in accordance with EIA 481-2 or IEC 286-3.

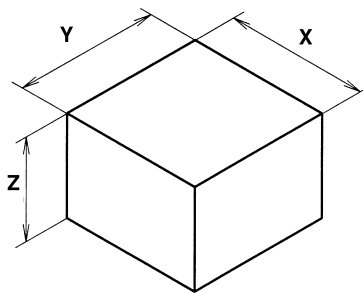
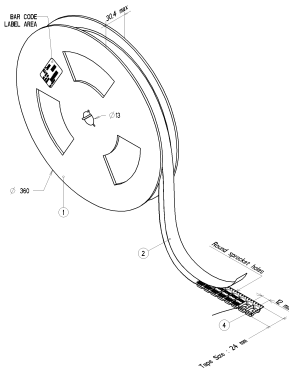
Connectors with a switch are packaged in accordance with EIA 481-3 or IEC 286-3

Standard packaging is in tape and reel. A modification code is added to the part number that indicates reel packaging and the number of components per reel (which varies according to the molding height).

Example: A CCM04 with 8 contacts plus switch and a molding height of 3.50 mm has a part number CCM04-1318-R751.

Molding Height	SMT Tails	Without Switch		With Switch		N° reels per box
		2 x 3 contacts	2 x 4 contacts	2 x 4 contacts	2 x 8 contacts	
1.25 mm	Standard	R182 (1800pcs)	R132 (1300pcs)	R102 (1000pcs)	R651 (650pcs)	5
1.25 mm	Straight	R182 (1800pcs)	R132 (1300pcs)	R102 (1000pcs)		5
2.00 mm	Standard	R122 (1200pcs)	R901 (900pcs)			5
2.75 mm	Straight	R122 (1200pcs)	R901 (900pcs)	R801 (800pcs)	R451 (450pcs)	5
2.75 mm	Standard	R122 (1200pcs)	R901 (900pcs)	R801 (800pcs)	R451 (450pcs)	5
3.50 mm	Standard	R112 (1100pcs)	R801 (800pcs)	R751 (750pcs)		5
4.25 mm	Standard	R951 (950pcs)	R701 (700pcs)	R651 (650pcs)		5
5.00 mm	Standard		R651 (650pcs)	R601 (600pcs)		5

R = Reel



Reel Diameter	Reel Width	X	Y	Z
360 mm	24.4 mm	344 mm	350 mm	152

Dimensional Drawings

[illegible][illegible]

CCM04-1814 PCB layout

RECOMMENDED PC BOARD LAYOUT
(Component side)

Plastic outline
Contact foot area
0.8 x 1
Pad

15 23.2 15

5.5 2.5 5.5

13

0.2

13

3.81 3.81 7.79

25.5

Prohibited area

Contact location according to
ISO 7815-2 & ENV 1375-1 & GSM-H

[illegible]

CCM04-1889 PCB Layout

RECOMMENDED PC BOARD LAYOUT
(Component side)

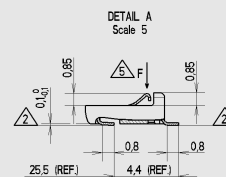
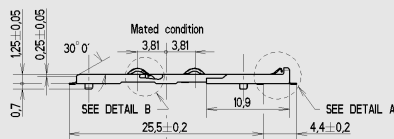
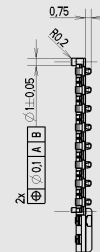
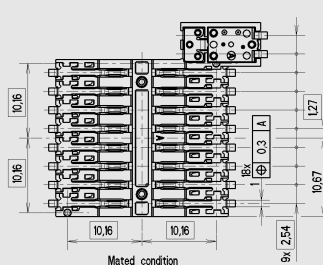
The diagram illustrates the recommended PCB layout for the CCM04-1889 component on the component side. Key features include:

- Plastic outline** and **Contact foot area 0,8 x 1** are indicated at the top left.
- Pad** dimensions are specified as $5 \times 2,54$ and $1,27$.
- Prohibited area** is marked at the bottom left.
- Contact location according to ISO 7816-2** is noted at the bottom left.
- Dimensions:**
 - Overall width: 23,2
 - Overall height: 13
 - Pin pitch: 2,54
 - Pin width: 0,8
 - Pin spacing: 1,27
 - Pin length: 5,08
 - Pin offset: 0,2
 - Pin diameter: $\varnothing 0,2$
 - Pin spacing (center-to-center): 2,5
 - Pin offset (center-to-center): 5,5
 - Pin offset (edge-to-center): 15
 - Pin offset (edge-to-center): 4,4
 - Pin offset (edge-to-center): 1,8
 - Pin offset (edge-to-center): 7,99
 - Pin offset (edge-to-center): 3,81
 - Pin offset (edge-to-center): 25,5
 - Pin offset (edge-to-center): 4,4
- Component locations:** C1, C2, C3, C4, C5, C6, C7, C8, SW, SW.

Unless otherwise stated, tolerances are ± 0.10 mm

Unless otherwise stated, tolerances are ± 0.10 mm

Dimensional Drawings

[illegible]

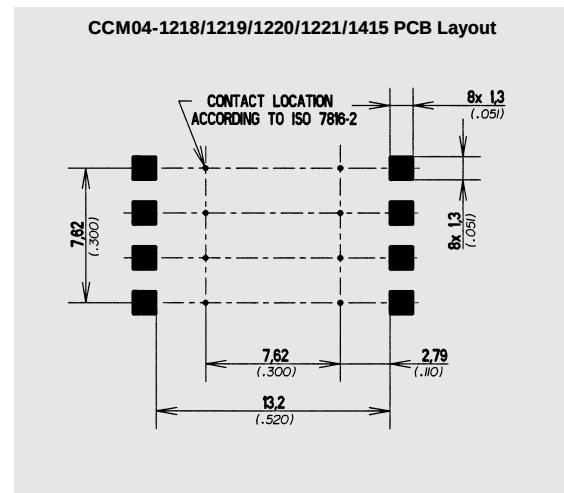
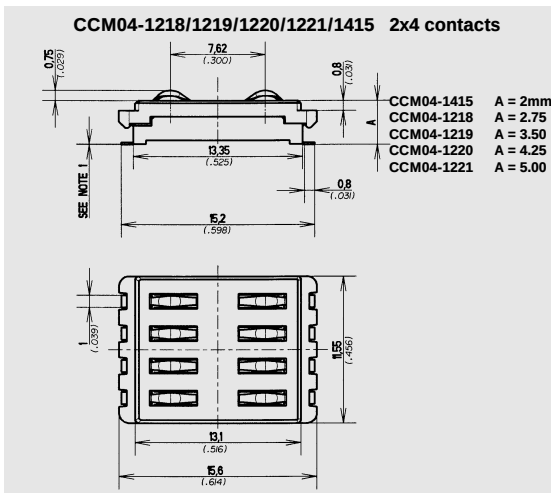
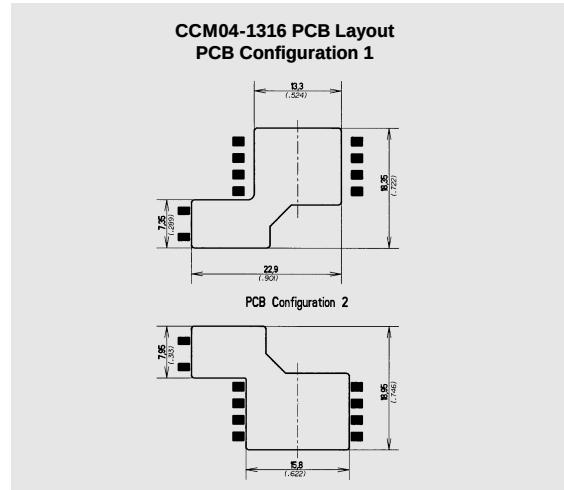
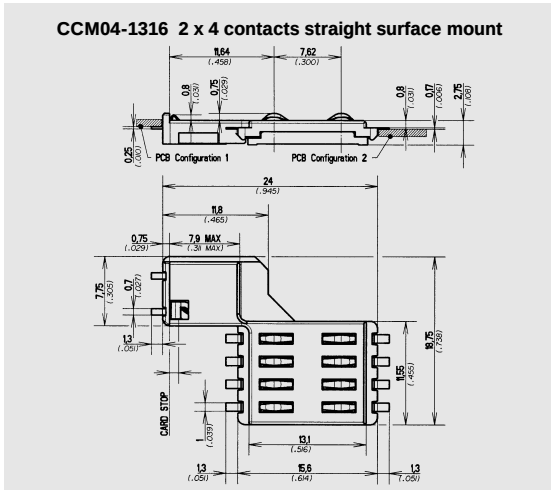
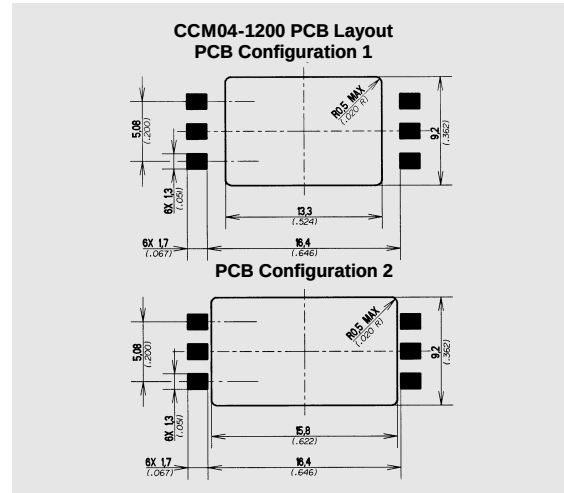
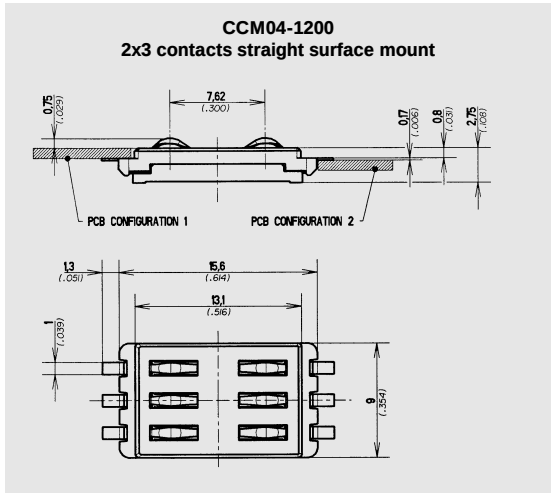
CCM04-1905



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CCM04 MK II

Dimensional Drawings



Dimensional Drawings

The technical drawing shows two views of the CCM04 connector:

- Top View:** Shows a rectangular component with a central raised section. Dimensions include:
 - Overall width: 1.64 (r.438)
 - Central raised section width: .762 (r.300)
 - Left side mounting tab width: .08 (r.203)
 - Right side mounting tab width: .08 (r.203)
 - Distance from left edge to start of raised section: .95 (r.233)
 - Distance between mounting tabs: .52 (r.598)
 - Distance from right edge to end of raised section: .08 (r.203)
- Side View:** Shows the profile of the connector. Dimensions include:
 - Overall height: 1.8 (r.455)
 - Height of the main body: .75 MAX (.39 MAX)
 - Height of the mounting tab: .07 (r.178)
 - Width of the mounting tab: .75 (r.35)
 - Length of the main body: 24 (r.945)
 - Length of the mounting tab: 1.8 (r.455)
 - Length of the central raised section: .52 (r.598)
 - Length of the mounting tabs: .08 (r.203)
 - Length of the main body: 1.85 (r.435)
 - Length of the mounting tabs: .08 (r.203)
 - Length of the main body: 1.6 (r.64)
 - Length of the mounting tabs: .08 (r.203)

A vertical note on the right side of the drawing reads "SEE NOTE".

Model	Dimension A
CCM04-1317	A = 2.75
CCM04-1318	A = 3.50
CCM04-1319	A = 4.25
CCM04-1320	A = 5.00

Figure 1: Detail of the connection between the column and the beam. The diagram shows a cross-section of a reinforced concrete column and beam. The column has a width of 92 cm (362 inches) and a height of 132 cm (519 inches). The beam has a width of 2x 11 cm (2x 43 inches) and a height of 2x 17 cm (2x 67 inches). The reinforcement consists of 8x 13 mm bars (8x 0.51 inches) in the column and 2x 17 mm bars (2x 0.67 inches) in the beam. The connection is detailed with dimensions and reinforcement specifications.

PCB Configuration

Dimensions shown:

- Pin Pitch: 9.2 (1.362)
- Pin Width: 2x 1.1 (0.043)
- Pin Spacing: 13.2 (1.59)
- Package Width: 17.78 (1.750)
- Contact Locations: 2x 1.7 (0.067), 16x 1.3 (1.029), 16x 1.3 (1.051)

CONTACT LOCATION
ACCORDING TO ISO 786-2

The image contains two technical drawings of electronic components. The top drawing is a side view of a component with a central rectangular body and two circular features on top. Dimensions include a top width of 7.62 (±.303), a top thickness of 0.75 (±.029), a central body width of 13.35 (±.523), a central body height of 5.2 (±.298), and a bottom width of 0.8 (±.039). A note 'SEE NOTE 1' points to the central body. The bottom drawing is a top view of a component with a rectangular body and four circular features. Dimensions include a central body width of 13.1 (±.346), a central body height of 5.6 (±.644), and a bottom width of 0.8 (±.039). A note 'SEE NOTE 1' points to the central body.

Technical drawings of two electronic components, CCM04-5004* and CCM04-5102, showing dimensions in inches and millimeters.

CCM04-5004* Dimensions:

- Top Width: 7.62 (±.303)
- Top Thickness: 0.75 (±.029)
- Central Body Width: 13.35 (±.523)
- Central Body Height: 5.2 (±.298)
- Bottom Width: 0.8 (±.039)

CCM04-5102 Dimensions:

- Central Body Width: 13.1 (±.346)
- Central Body Height: 5.6 (±.644)
- Bottom Width: 0.8 (±.039)

Notes:

- SEE NOTE 1
- *CCM04-5004 replaced by CCM04-5102 (see page 53)

Part Numbers and Dimensions:

Part Number	Dimension A
CCM04-5004*	A = 2.75
CCM04-1201	A = 2.75
CCM04-1202	A = 3.50
CCM04-1203	A = 4.25
CCM04-1204	A = 5.00

Figure 1: Dimensions of the contact grid. The diagram shows a 3x3 grid of contacts. Dimensions are given in inches and parentheses in millimeters. The vertical spacing between contact rows is 5.08 (.200). The horizontal spacing between contact columns is 7.62 (.300). The contact width is 2.79 (.110). The contact pitch (center-to-center) is 8.2 (.520). The contact location is defined according to ISO 7816-2. The contact grid is 6x13 (.05) in size.

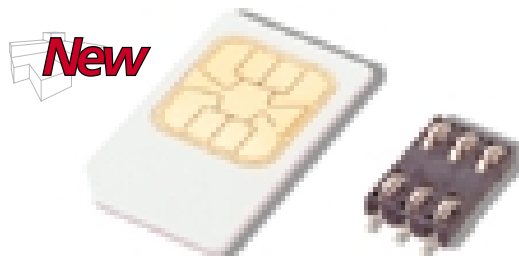


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Dimensions are shown in mm
Dimensions subject to change

48

CCM04 MK III Miniature Connectors



Introducing a new range of CCM04 connectors designed to interface with either full or SIM/SAM smart cards and designed to minimize space usage on the PCB while maximizing price economy.

Features

- Available with 6 or 8 contacts.
- By using an inlay finish in the contact area, the life of the precious metal is extended by up to 10 times that of a standard gold plating.
- The contact area is spooned to reduce the risk of accidental (or deliberate) damage and to optimize the electrical connection with the card.
- The insulators, molded from high temperature thermoplastic, are suited for infrared and convection soldering processes.
- With tape and reel packaging as standard, the connectors are designed to be automatically pick and placed.
- Gold plating versions are also available.

Construction

Insulator	High temperature thermoplastic UL 94V.0
Contacts	Copper Alloy
Contact finish	Gold Alloy Inlay (Au / Ag / Pd)
PC Tail plating	Tin lead (2 μ m min) Sn / Pb

Mechanical data

Mechanical life	50,000 cycles minimum
Precious metal	5000 cycles minimum (see note 1)
Contact force	0.25N min / 0.5N max
Contact travel	0.75mm

Electrical data

Insulation resistance	1000 M Ω min
Contact resistance max	100 m Ω max
Switching current	10 μ A min / 1 A max
Dielectric strength	500 Vrms min

Environmental data

Operating temperature	-40°C to +85°C
Soldering temperature	Temperature/time profile acc. to CECC00802 para. 6.1, Fig. 3 with peak temperature
Salt mist	IEC 512 test number 11f (96 hours)
Damp heat	IEC 512 test number 11c (10 days)

CCM04 MK III

6 Contacts Versions

Part Number	N° of Contacts	Total Height	Total Length	Terminal Design	Contact Plating		Insulator Width	Packaging	Modification Code
					Inlay	Gold			
CCM04-4105	6	1.90	11.8	SMT IN	X		7.62	2400	R242
CCM04-5137	6	1.90	11.8	SMT IN		X	7.62	2400	R242
CCM04-4118	6	1.90	14.3	SMT OUT	X		7.62	2400	R242
CCM04-5102*	6	1.90	15.2	SMT OUT		X	7.62	2400	R242
CCM04-5111	6	1.90	14.3	SMT OUT		X	7.62	2400	R242
CCM04-4106	6	2.10	11.8	SMT IN	X		7.62	1900	R192
CCM04-5116	6	2.10	11.8	SMT IN		X	7.62	1900	R192
CCM04-4119	6	2.10	14.3	SMT OUT	X		7.62	1900	R192
CCM04-5112	6	2.10	14.3	SMT OUT		X	7.62	1900	R192
CCM04-4120	6	2.40	14.3	SMT OUT	X		7.62	1900	R192
CCM04-5120	6	2.40	14.3	SMT OUT		X	7.62	1900	R192
CCM04-5106	6	2.50	11.8	SMT IN		X	7.62	1900	R192
CCM04-5114	6	2.50	11.8	SMT IN	X		7.62	1900	R192
CCM04-4121	6	2.65	14.3	SMT OUT	X		7.62	1900	R192
CCM04-5121	6	2.65	14.3	SMT OUT		X	7.62	1900	R192
CCM04-5115	6	2.80	11.8	SMT IN		X	7.62	1900	R192
CCM04-5134	6	2.80	11.8	SMT IN	X		7.62	1900	R192
CCM04-4122*	6	2.90	14.3	SMT OUT	X		7.62	1600	R162
CCM04-5122*	6	2.90	14.3	SMT OUT		X	7.62	1600	R162

8 Contacts Versions

Part Number	N° of Contacts	Total Height	Total Length	Terminal Design	Contact Plating		Insulator Width	Packaging	Modification Code
					Inlay	Gold			
CCM04-4135*	8	1.90	11.8	SMT IN	X		10.16	2400	R242
CCM04-5123*	8	1.90	11.8	SMT IN		X	10.16	2400	R242
CCM04-4148*	8	1.90	14.3	SMT OUT	X		10.16	2400	R242
CCM04-5129*	8	1.90	14.3	SMT OUT		X	10.16	2400	R242
CCM04-4136	8	2.10	11.8	SMT IN	X		10.16	1900	R192
CCM04-5113	8	2.10	11.8	SMT IN		X	10.16	1900	R192
CCM04-4149	8	2.10	14.3	SMT OUT	X		10.16	1900	R192
CCM04-5130	8	2.10	14.3	SMT OUT		X	10.16	1900	R192
CCM04-4150	8	2.40	14.3	SMT OUT	X		10.16	1900	R192
CCM04-5131	8	2.40	14.3	SMT OUT		X	10.16	1900	R192
CCM04-5109	8	2.50	11.8	SMT IN	X		10.16	1900	R192
CCM04-5125	8	2.50	11.8	SMT IN		X	10.16	1900	R192
CCM04-4151	8	2.65	14.3	SMT OUT	X		10.16	1900	R192
CCM04-5132	8	2.65	14.3	SMT OUT		X	10.16	1900	R192
CCM04-5108	8	2.80	11.8	SMT IN	X		10.16	1900	R192
CCM04-5127	8	2.80	11.8	SMT IN		X	10.16	1900	R192
CCM04-4152*	8	2.90	14.3	SMT OUT	X		10.16	1600	R162
CCM04-5133*	8	2.90	14.3	SMT OUT		X	10.16	1600	R162

Note: *Versions on request

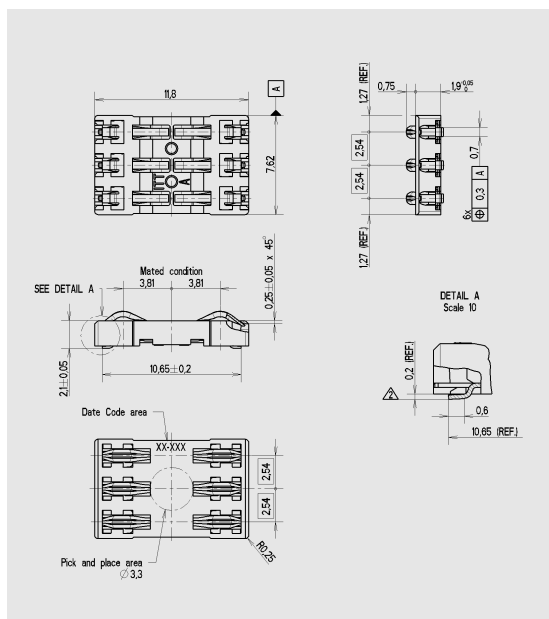
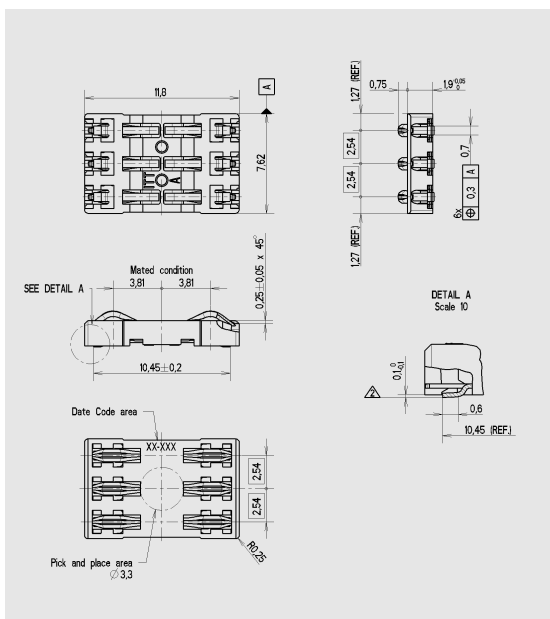
CCM04 MK III

2 x 3 contacts SMT IN

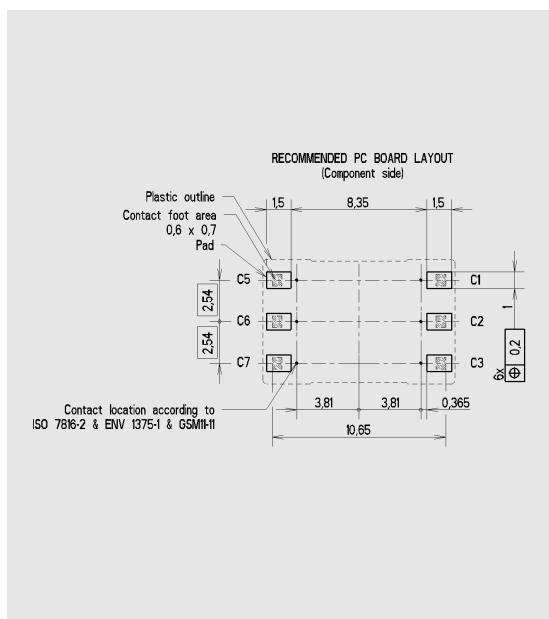
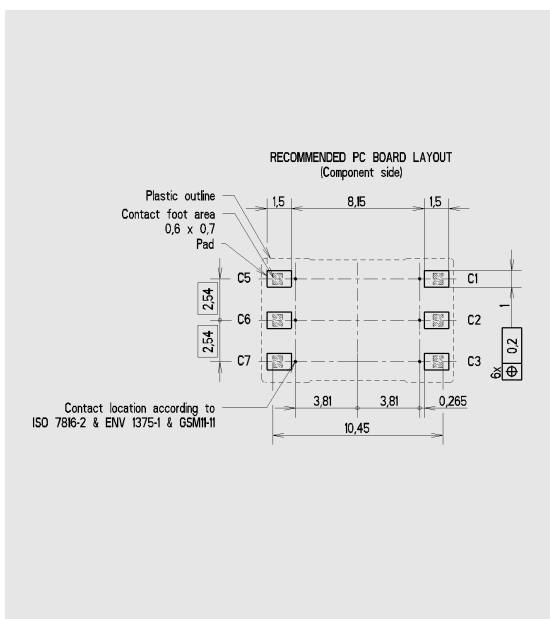
Height	Inlay	Gold
1.90 mm	CCM04-4105	CCM04-5137

Height	Inlay	Gold
2.1 mm	CCM04-4106	CCM04-5116

Dimensional Drawings



PCB Layout



Note: * Versions on request

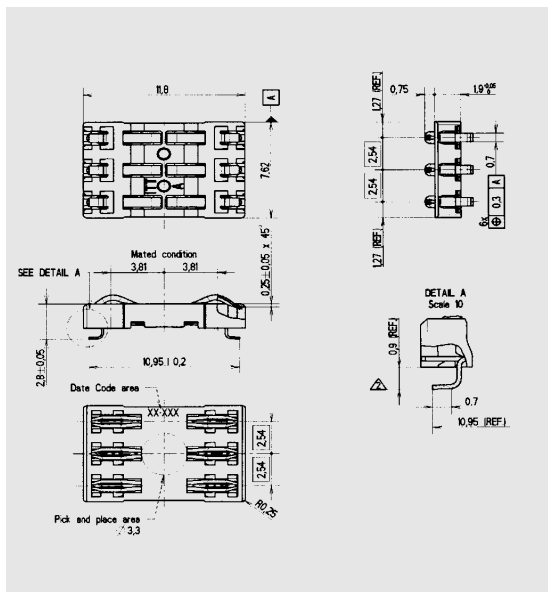
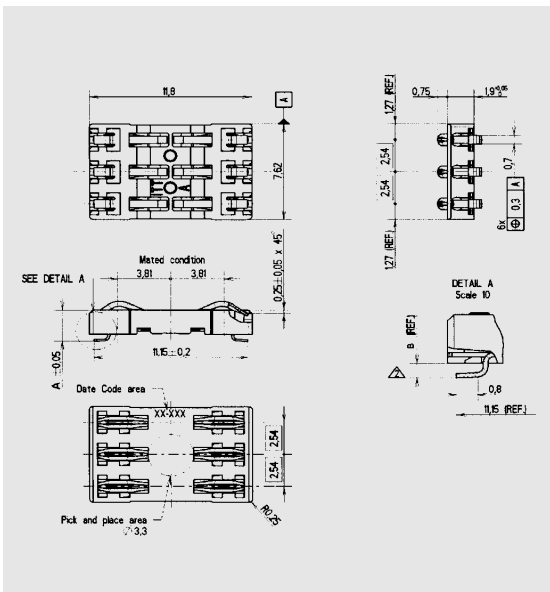
CCM04 MK III

2 x 3 contacts SMT IN

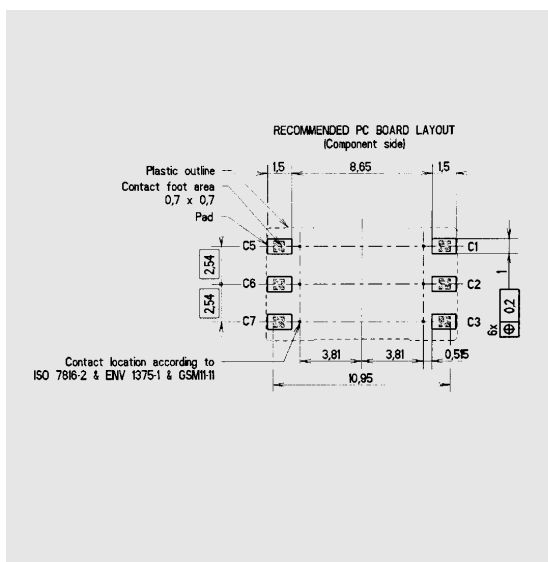
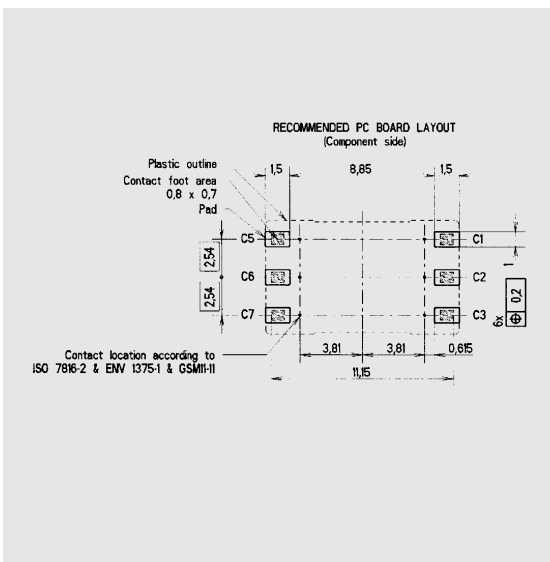
Height A	Height B	Inlay	Gold
2.4 mm	0.5 mm	CCM04-4107*	CCM04-5117*
2.5 mm	0.6 mm	CCM04-5114	CCM04-5106
2.65 mm	0.75 mm	CCM04-4108*	CCM04-5118*
2.9 mm	1 mm	CCM04-4109*	CCM04-5119*
3.15 mm	1.25 mm	CCM04-4110*	CCM04-5107*

Height	Inlay	Gold
2.8 mm	CCM04-5134	CCM04-5115

Dimensional Drawings



PCB Layout



Note: * Versions on request



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Dimensions are shown in mm
Dimensions subject to change

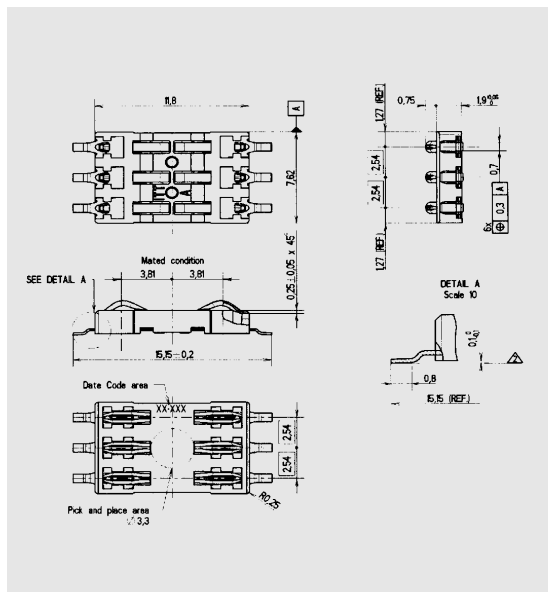
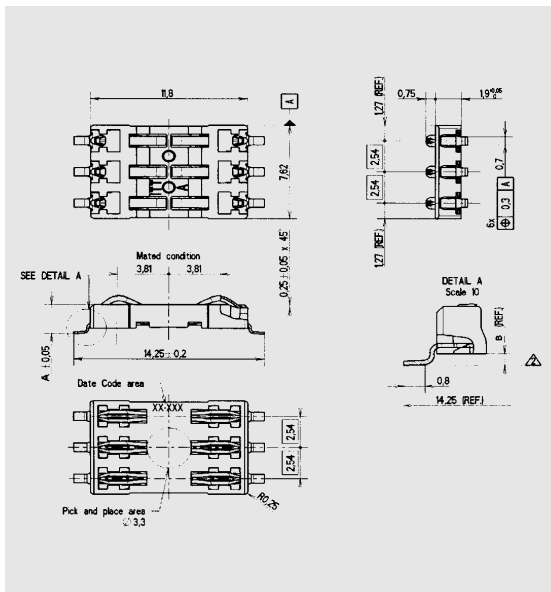
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2 x 3 contacts SMT OUT LONG

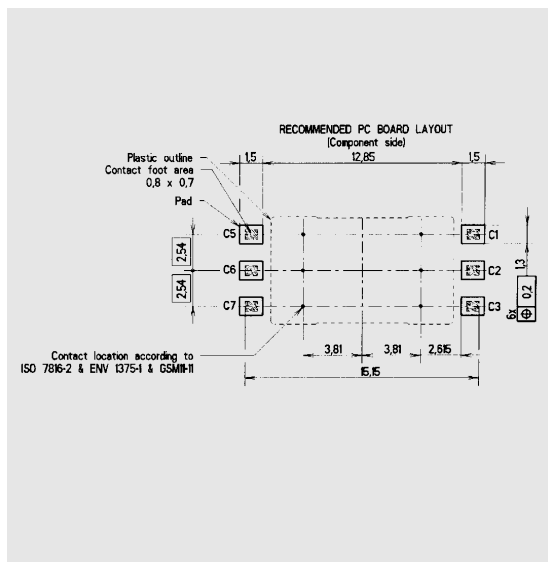
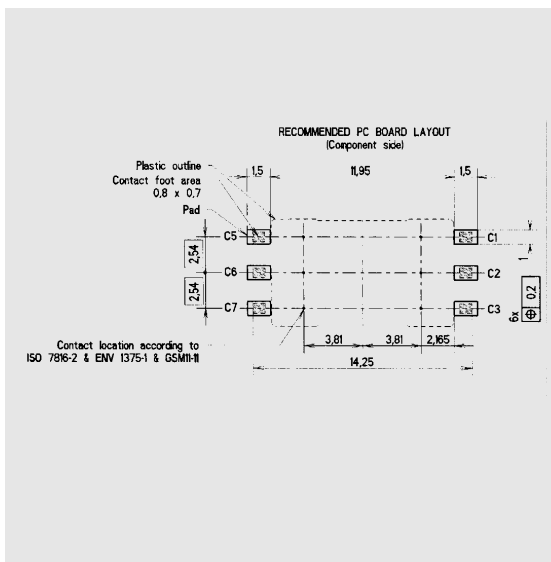
Height A	Height B	Inlay	Gold
1.9 mm	0.1 mm	CCM04-4118	CCM04-5111
2.1 mm	0.2 mm	CCM04-4119	CCM04-5112
2.4 mm	0.5 mm	CCM04-4120	CCM04-5120
2.65 mm	0.75 mm	CCM04-4121	CCM04-5121
2.9 mm	1.0 mm	CCM04-4122*	CCM04-5122*

Height	Inlay	Gold
1.9 mm		CCM04-5102*

Dimensional Drawings



PCB Layout



Note: * Versions on request

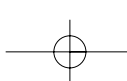


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Dimensions are shown in mm
Dimensions subject to change

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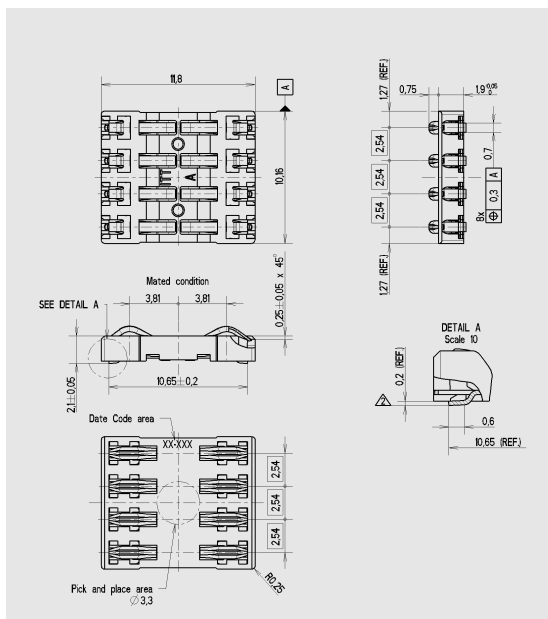
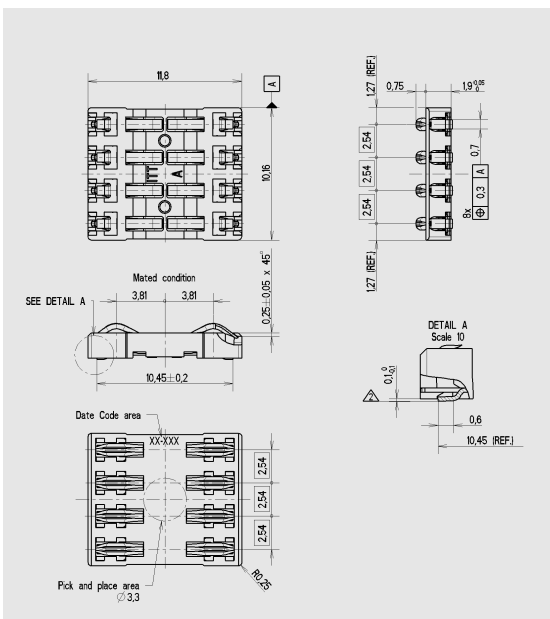
CCM04 MK III

2 x 4 contacts SMT IN

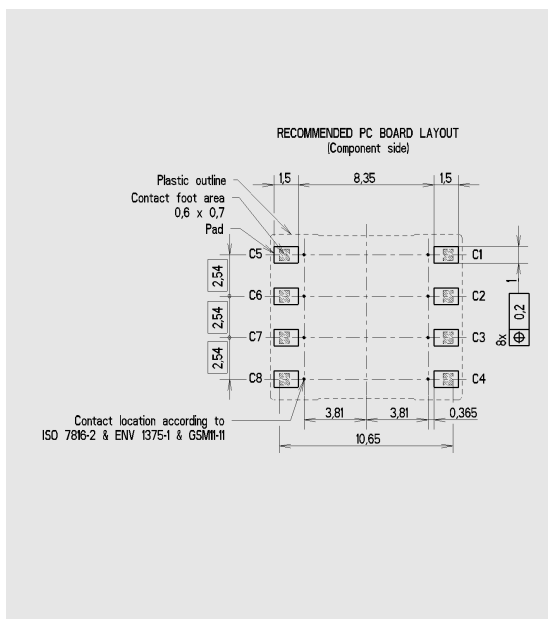
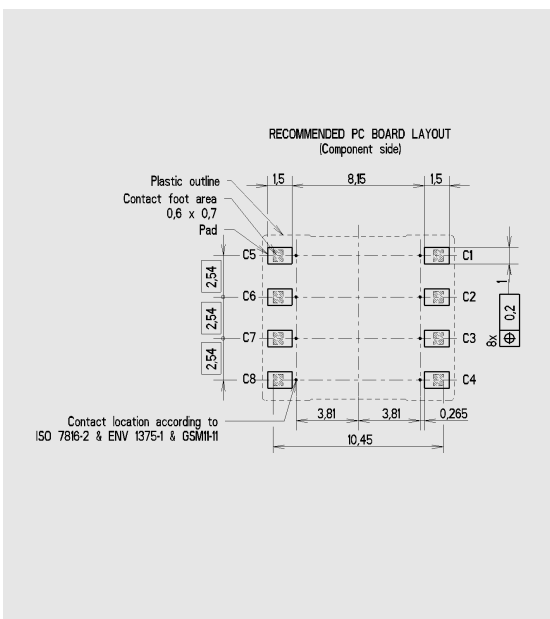
Height	Inlay	Gold
1.90 mm	CCM04-4135	CCM04-5123

Height	Inlay	Gold
2.1 mm	CCM04-4136	CCM04-5113

Dimensional Drawings



PCB Layout



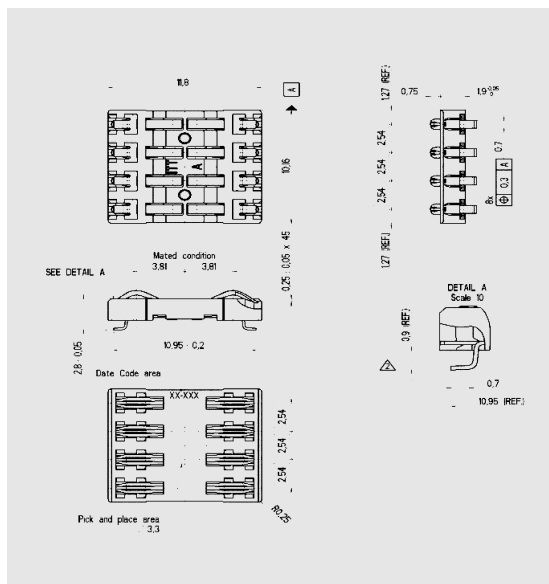
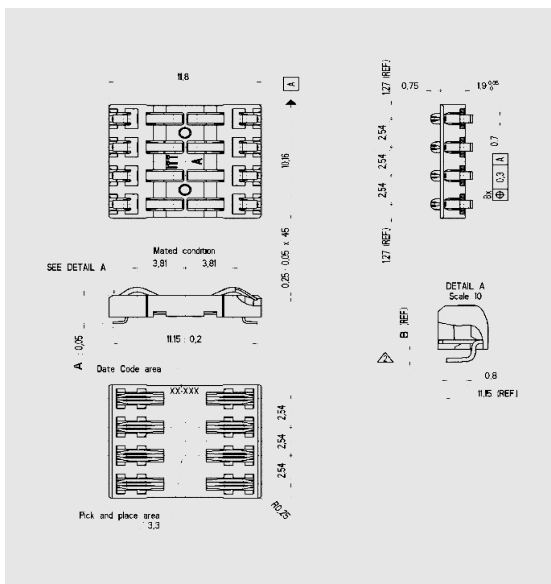
CCM04 MK III

2 x 4 contacts SMT IN

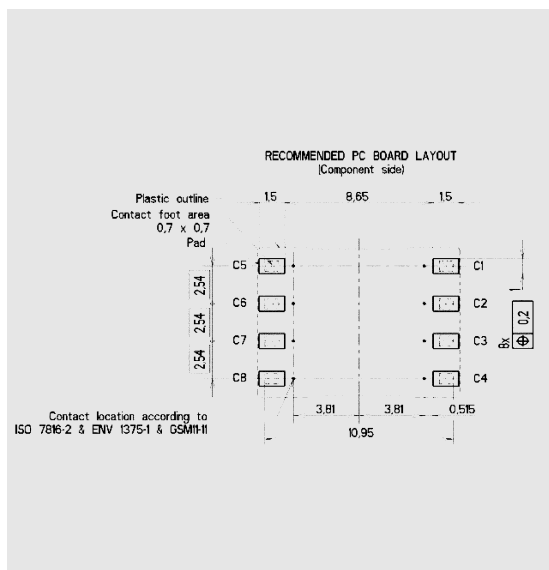
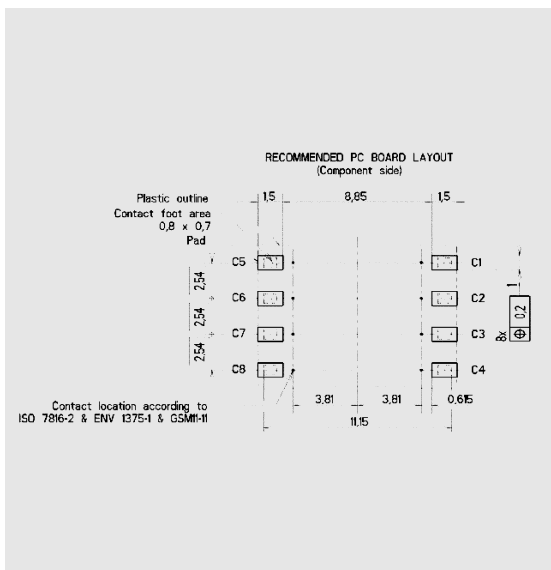
Height A	Height B	Inlay	Gold
2.4 mm	0.5 mm	CCM04-4137*	CCM04-5124*
2.5 mm	0.6 mm	CCM04-5109	CCM04-5125
2.65 mm	0.75 mm	CCM04-4138*	CCM04-5126*
2.9 mm	1.0 mm	CCM04-4139*	CCM04-5128*
3.15 mm	1.25 mm	CCM04-4140	CCM04-5135*

Height	Inlay	Gold
2.8 mm	CCM04-5108	CCM04-5127

Dimensional Drawings



PCB Layout



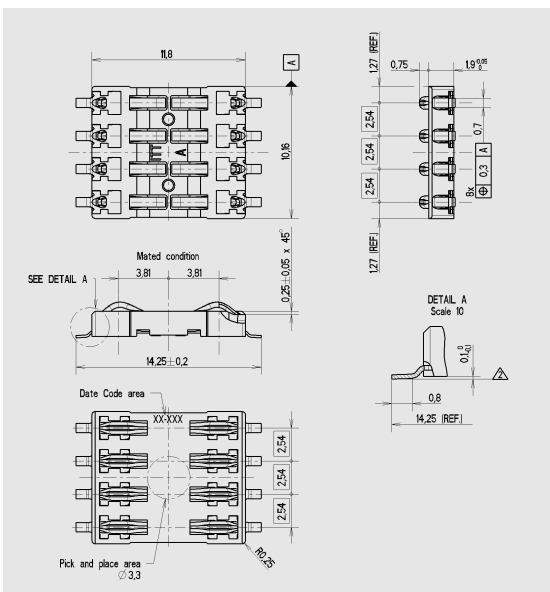
Note: * Versions on request

CCM04 MK III

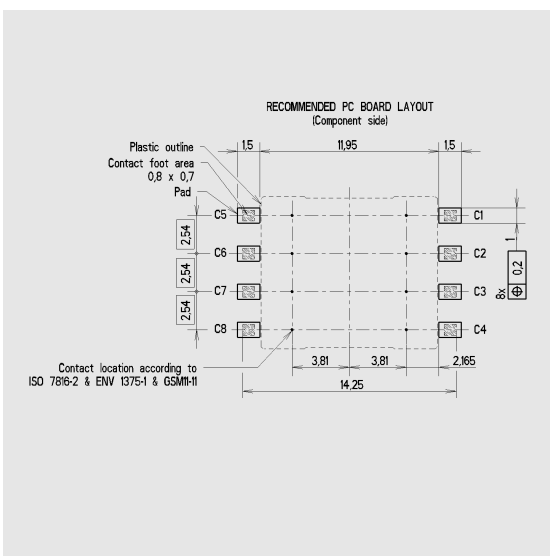
2 x 4 contacts SMT OUT

Height A	Height B	Inlay	Gold
1.9 mm	0.1 mm	CCM04-4148	CCM04-5129
2.1 mm	0.2 mm	CCM04-4149	CCM04-5130
2.4 mm	0.5 mm	CCM04-4150	CCM04-5131
2.65 mm	0.75 mm	CCM04-4151	CCM04-5132
2.9 mm	1.0 mm	CCM04-4152*	CCM04-5133*

Dimensional Drawings



PCB Layout



Note: * Versions on request